

I. Amendment to the Claims

Please amend claims 1-2, 4-8, 10-16, 18-19, 21-28, and 37-38 as shown below. Please cancel claims 17 and 32-33 without prejudice to their consideration in a continuing application.

1. (Currently Amended) ~~A method of repairing a fractured bone, comprising:~~
advancing a device through a bone fragment, the device having an elongated shaft
extending longitudinally about a shaft axis, the device comprising:
a bone exterior section extending longitudinally about the shaft axis and making up at
least one third of a total length of the device; and
a bone penetration section extending distally from the bone exterior section, the bone
penetration section comprising:
a non-engaging fragment section extending longitudinally about the shaft axis; and
a bone anchor section extending longitudinally about the shaft axis and located
distally to the non-engaging fragment section, the bone anchor section having
threads for engagement with the anchor bone, with a major diameter of the
threads being greater than a shaft diameter of the non-engaging fragment
section; and
a compression engagement on a distal end of the bone exterior section, the compression
engagement providing a shoulder extending at a substantial angle to the shaft axis,
the shoulder being wider than the major diameter of the threads of the bone anchor
section for substantial contact with an exterior surface of the bone fragment; and
screwing the device such that the bone anchor section advances into an anchor bone with
the fragment section in the bone fragment and with the bone exterior section extending outside
the bone and with the compression engagement in contact with an exterior surface of the bone
fragment to provide a compressive force on the bone fragment toward the anchor bone, thereby
~~connecting~~ The method of claim 28, wherein the compression engagement connects the bone
fragment to the anchor bone for a healing duration and ~~extending~~ extends out of the bone during
the healing duration.
2. (Currently Amended) The method of claim ~~[[1]]~~ 28, wherein the bone exterior section is
longer than the bone anchor section.

3. (Previously Presented) The method of claim 2, wherein the bone exterior section is more than 45% of a total length of the device.
4. (Currently Amended) The method of claim [[1]] 28, wherein the bone exterior section has threads of a shallower pitch than the threads of the bone anchor section, and wherein the compression engagement is provided by a nut rotatably supported on the threads of the bone exterior section.
5. (Currently Amended) The method of claim [[1]] 28, wherein the bone exterior section has external threads ~~which~~ that mate with internal threads on the compression engagement, and wherein the inside diameter of the internal threads on the compression engagement is smaller than the non-engaging fragment section such that the internal threads on the compression engagement cannot advance onto the non-engaging fragment section.
6. (Currently Amended) The method of claim [[1]] 28, wherein the bone exterior section has threads of a different thread profile than the threads of the bone anchor section, and wherein the compression engagement is provided by a nut rotatably supported on the threads of the bone exterior section.
7. (Currently Amended) The method of claim [[1]] 28, wherein the device is provided in a kit of a plurality of such devices each having a different length of non-engaging fragment section.
8. (Currently Amended) The method of claim [[1]] 28, wherein the compression engagement has a proximal side with a sloped profile to assist in removing the compression engagement after a healing duration through tissue.
9. (Previously Presented) The method of claim 8, wherein a slope of the proximal side of the compression engagement increases from a gentle slope adjacent an outer diameter of the bone exterior section to a steeper slope distal to the gentle slope, thus providing a compression engagement of generally tear-drop cross-sectional shape.
10. (Currently Amended) The method of claim [[1]] 28, wherein the compression engagement is permanently affixed to the bone exterior section.

11. (Currently Amended) The method of claim [[1]] 28, wherein the shaft of the non-engaging fragment section is non-threaded.
12. (Currently Amended) The method of claim [[1]] 28, wherein the threads on the bone anchor section are self-tapping distally for insertion.
13. (Currently Amended) The method of claim [[1]] 28, wherein the threads on the bone anchor section are self-tapping proximally for removal.
14. (Currently Amended) The method of claim [[1]] 28, wherein the compression engagement has a tear drop cross-sectional shape, wherein the compression engagement is permanently affixed to the bone exterior section, wherein the shaft of the non-engaging fragment section is non-threaded, and wherein the threads on the bone anchor section are self-tapping distally for insertion and self-tapping proximally for removal.
15. (Currently Amended) The method of claim [[1]] 28, wherein the bone anchor section ends in a distal drill tip adapted for insertion in bone without pre-drilling, and wherein the advancing and screwing acts are performed without pre-drilling.
16. (Currently Amended) The method of claim [[1]] 28, wherein shoulder of the compression engagement has a curvature to contact the exterior surface of the bone fragment along the curvature.
17. (Cancelled)
18. (Currently Amended) ~~A method of repairing a fractured bone, comprising:
advancing a threaded compression device through a bone fragment, the threaded
compression device comprising:
a shaft running longitudinally from a proximal end to a distal end about a shaft axis,
the shaft comprising:
an anchor section extending longitudinally about the shaft axis on the distal end
of the shaft, the anchor section having threads with a major diameter and a
minor diameter;~~

a non-engaging fragment section extending longitudinally about the shaft axis proximal to the anchor section, the non-engaging fragment section having a diameter which is no greater than the minor diameter of the anchor section such that The method of claim 28, wherein the non-engaging fragment section can fit within a profile drilled by the anchor section; and
an exterior section extending longitudinally about the shaft axis proximal to the non-engaging fragment section, the exterior section having a length which the bone exterior section makes up at least one third of the length of the shaft; and

[[a]] the compression shoulder adapted for mounting is mounted on [[a]] the distal end of the bone exterior section of the shaft at a longitudinally adjustable position, the compression shoulder providing a contact surface which extends at an angle to the shaft axis, the compression shoulder being wider than the major diameter of the threads of the bone anchor section for making contact with an exterior surface of the fragment; and

screwing the threaded compression device such that the bone anchor section advances into an anchor bone with the fragment section in the bone fragment and with the exterior section extending outside the bone, thereby connecting the bone fragment to an anchor bone for a healing duration and extending out of the bone with the compression engagement in contact with the exterior surface of the bone fragment during the healing duration.

19. (Currently Amended) A method of assisting in bone healing and growth, comprising:

advancing a device through a bone fragment, the device running from a proximal end to a distal end about a longitudinal axis, the device comprising:
an anchor section on the distal end, the anchor section having threads with a major diameter and a minor diameter;
a non-engaging fragment section proximal to the anchor section, the non-engaging fragment section having a smooth outer profile with a diameter which is no greater than the minor diameter of the threads of the anchor section;
a compression engagement proximal to the non-engaging fragment section, the compression engagement having a shoulder which extends at an angle relative to

~~the longitudinal axis, the shoulder being at a diameter greater than the major diameter of the threads of the anchor section; and~~

The method of claim 28, wherein the device comprises a rotation section proximal to the compression engagement for rotating the anchor section, the rotation section having a smooth outer diameter; and
the further screwing act uses using the smooth outer diameter of the rotation section to screw the device such that the bone anchor section advances into an anchor bone with the fragment section in the bone fragment and with the shoulder of the compression engagement abutting an exterior bone surface.

20. (Previously Presented) The method of claim 19, wherein the device further comprises a pointed proximal tip, and further comprising using the pointed proximal tip for drilling through bone in a reverse direction.

21. (Currently Amended) ~~A method of repairing a fractured bone, comprising:~~

~~advancing a threaded compression device through a bone fragment, the threaded compression device comprising:~~

~~a shaft running from a proximal end to a distal end about a shaft axis, the shaft comprising:~~

The method of claim 28, wherein the shaft comprises:

a distal drill tip for forward insertion;

~~an anchor section on the distal end of the shaft next to the distal drill tip, the anchor section having threads with an anchor thread pitch;~~

a proximal threaded shaft section proximal to the anchor section, the proximal threaded shaft section having threads with a compression thread pitch, the compression thread pitch being different than the anchor thread pitch; and
a proximal drill tip for reverse insertion; and

a compression shoulder adapted for mounting on the proximal threaded shaft section at an axially adjustable position, the compression shoulder providing a contact surface which extends at an angle to the shaft axis, the shoulder being wider than the threads of the bone anchor section for making contact with an exterior surface of the fragment; and

screwing the threaded compression device such that the anchor section advances into an anchor bone with the fragment section in the bone fragment and with the compression shoulder contacting an exterior surface of the bone, thereby connecting the bone fragment to the anchor bone with the compression engagement in contact with the exterior surface of the bone for a healing duration.

22. (Currently Amended) A method of repairing a fractured bone, comprising:

~~advancing a reverse taper threaded compression device through a bone fragment, the compression device comprising:~~

~~an elongated shaft running from a proximal end to a distal end about a shaft axis, the shaft comprising:~~

~~an anchor section on the distal end of the shaft, the anchor section having external threads for engagement with the anchor substrate with an anchor major diameter and an anchor minor diameter; and~~

The method of claim 28, wherein

~~a fragment exterior section proximal to the anchor section, the fragment exterior section having has external threads with a fragment exterior major diameter and a fragment exterior minor diameter; wherein the fragment exterior major diameter is less than the ~~anchor~~ major diameter of the threads of the bone anchor section; and~~

~~a compression engagement adapted for mounting on the fragment exterior section, the compression engagement providing a contact surface which extends at an angle to the shaft axis, the shoulder being wider than the major diameter of the threads of the bone anchor section for making contact with an exterior surface of the fragment, the compression engagement having has internal threads for mating with the external threads of the fragment exterior section enabling the compression engagement to be axially movable on the fragment exterior section; and~~

~~screwing the threaded compression device such that the anchor section advances into an anchor bone with the fragment section in the bone fragment and locating the compression shoulder in contact with an exterior surface of the bone, thereby placing a compression force on the bone fragment against the anchor bone.~~

23. (Currently Amended) The method of claim 22, wherein the fragment exterior minor diameter is less than the ~~anterior~~ minor diameter of the threads of the bone anchor section.
24. (Currently Amended) The method of claim 22, wherein the fragment exterior major diameter is no greater than a mean of the ~~anterior~~ major diameter and the ~~anterior~~ minor diameter of the threads of the bone anchor section.
25. (Currently Amended) The method of claim 24, wherein the fragment exterior major diameter is no greater than the ~~anterior~~ minor diameter of the threads of the bone anchor section.
26. (Currently Amended) The method of claim 22, wherein the threads ~~[[on]]~~ of the bone anchor section are self-tapping distally for insertion.
27. (Currently Amended) The method of claim 22, wherein the threads ~~[[on]]~~ of the bone anchor section are self-tapping proximally for removal.
28. (Currently Amended) A method of repairing a fractured bone, comprising:
screwing a device through a bone fragment, the device comprising:
an elongated shaft having a bone penetration section extending distally from a bone exterior section about a shaft axis, the bone penetration section being shorter than the bone exterior section, the bone penetration section including a fragment section and a bone anchor section located distally to the fragment section, the bone anchor section having threads with a major diameter of the threads being greater than a diameter of the fragment section; and
a compression engagement on a distal end of the bone exterior section, the compression engagement providing a shoulder extending at a substantial angle to the shaft axis, the shoulder being wider than the major diameter of the threads of the bone anchor section; ~~[[and]]~~
further screwing the device such that the bone anchor section advances into an anchor bone with the fragment section in the bone fragment and with the bone exterior section extending outside the bone with a length extending outside the bone longer than the bone penetration section, with the compression engagement in contact with

an exterior surface of the bone fragment to provide a compressive force on the bone fragment toward the anchor bone; and
moving the compression engagement axially on the elongated shaft to position the compression engagement in an axial position to make substantial contact with an exterior surface of the bone fragment when the bone anchor section advanced to a final position;
wherein the screwing act and the further screwing act occur in a reverse direction such that the device is inserted into the anchor bone prior to engaging the bone fragment, while the moving the compression engagement axially on the elongated shaft occurs in a forward direction, opposite to the direction the device was introduced to the bone.

29. (Original) The method of claim 28, further comprising:

with the bone anchor section advanced into the bone fragment but prior to the act of further screwing the device into the anchor bone, manipulating the bone exterior section to reposition or bias the bone fragment relative to the anchor bone.

30. (Original) The method of claim 29, further comprising:

after the manipulating act, holding the bone exterior section in a desired alignment during the further screwing act.

31. (Original) The method of claim 28, wherein, after the further screwing act:

the fragment section extends through the bone fragment without threaded engagement with the bone fragment; and
the threads of the bone anchor section are in engagement with the anchor bone; and
the compression engagement is in substantial contact with an exterior surface of the bone fragment to bias the bone fragment toward the anchor bone.

32. (Cancelled)

33. (Cancelled)

34. (Original) The method of claim 28, further comprising:
after the further screwing act, removing a portion of the bone exterior section so the bone exterior section does not extend as far outside the patient's tissue.
35. (Original) The method of claim 28, wherein the compression engagement has a proximal side with a sloped profile, and further comprising:
after a healing duration, removing the compression engagement through tissue with the sloped profile on the proximal side of the compression engagement assisting in separating tissue.
36. (Original) The method of claim 28, further comprising:
monitoring torque applied during the further screwing act.
37. (Currently Amended) ~~A method of using a reverse-taper threaded compression device for placing a compression force on a fragment against an anchor substrate, the method comprising:~~
~~advancing an anchor section disposed on a distal end of a shaft of the compression device into the anchor substrate, such that external threads on the anchor section engage the anchor substrate;~~
~~advancing a compression engagement disposed on a fragment exterior section proximal to the anchor section relative to the shaft, the compression engagement being wider than the external threads of the anchor section, such that the compression engagement makes contact with an exterior surface of the fragment to bias the fragment toward the anchor substrate; and~~
The method of claim 28, further comprising cutting off a portion of the fragment exterior section, the cut preventing the compression engagement from axially retracting on the shaft.
38. (Currently Amended) The method of claim 37, further comprising:
removing the ~~compression~~ device from the anchor ~~bone~~ substrate by placing a reverse torque on the ~~compressed~~ compression engagement.